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THE MISSOURI AGRIMONIES

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Having collected some interesting specimens of *Agrimonia* in 1915, that I could not place satisfactorily by the manuals, I was led to make a closer examination of the species of this genus, and through the kindness of Dr. Moore, of the Missouri Botanical Garden, I was enabled to study all the Missouri specimens of this genus in the Garden herbarium.

For more than sixty years the species of *Agrimonia* have been but little understood, that is, up to the year 1893, when Britton's 'Manual'¹ began to be of influence in the way of specific names. The genus seems to have been very much neglected in Missouri, for I have seen only sixteen specimens collected in the state prior to 1893. This seems rather remarkable in a genus of so many species which are so conspicuous in the field, but the fact is due in large part to the prevailing impression that we had only two American species, one of which was also found in Europe, and therefore it was of no importance to make specimens of such widely distributed species. Such an impression also prevailed in many other genera at that time, notable examples of which are *Ranunculus repens*, *Scrophularia nodosa*, *Amaranthus Blitum*, and *Portulaca oleracea*.

Of the sixteen specimens examined, collected before 1893, six were labeled *A. parviflora*, five correctly, but one is *A.*

¹Britton, N. L. Manual northeastern states and Canada. 1891.

rostellata. Only two specimens of *A. rostellata* are included in this lot, one labeled *A. parviflora*, as cited above, and the other being called *A. striata*. Only one specimen of *A. platycarpa* was found and that was labeled *A. Eupatoria*. The remaining eight specimens are all *A. pubescens*, of which three are indicated as *A. Eupatoria*, one *A. striata*, and four are left blank as to specific name.

It will thus be seen that these sixteen earlier collections bear but three names, six being called *A. parviflora*, four *A. Eupatoria*, and two being given the name of *A. striata*, while four collectors did not signify any choice of specific names. It is true that one of these sheets bears a label on which the species is indicated as *A. microcarpa*, but this specimen came to me unnamed, and sometime in 1893 I affixed this name to the specimen, being led to do this by Britton's 'Manual.'

It is hard to conceive how two such unlike species as *A. rostellata* and *A. pubescens* should both be named *A. striata* by the collectors, but in those days *A. striata* was little understood, and Michaux's species was not found in any of the manuals or floras, although it was well characterized and is one of our most distinct species.

Several authors have studied and described species and varieties of *Agrimonia*, notably Solander,¹ Michaux,² Muhlenberg,³ Pursh,⁴ Torrey and Gray,⁵ Wallroth,⁶ Britton,⁷ Bicknell,⁸ and Kearney.⁹

Our oldest species is *A. parviflora* Solander, a distinct species by itself, and one generally understood. The next species to be described is Michaux's *A. striata*, here mentioned because it was formerly confused with *A. rostellata*

¹Ait. Hort. Kew. 2:129-131. 1789.

²Fl. Bor. Am. 1:287. 1803.

³Cat. Pl. Am. Sept. 47. 1813.

⁴Fl. Am. Sept. 1:335-336. 1816.

⁵Fl. N. Am. 1:431. 1840.

⁶Beitr. Bot. 1:1-61. 1842.

⁷Bull. Torr. Bot. Club 19:221. 1892.

⁸*Ibid.* 23:508-523. 1896.

⁹*Ibid.* 24:565. 1897.

and *A. pubescens*, and which may ultimately be found in northeastern Missouri.

Muhlenberg, in 1813, indicated *A. pumila* as a good species but unfortunately did not describe it, and also described *A. Eupatoria*, var. *hirsuta*, which eighty-three years later was raised to specific rank. Torrey and Gray, in 1840, described *A. Eupatoria*, var. *mollis*, which fifty-two years afterward was described as a species. Wallroth, in 1842, monographed the genus, giving six of our species, one, *A. microcarpa*, having been described as *A. pumila* by Muhlenberg. Most of Wallroth's names are valid and are the ones that will be accepted in American botany.

Britton, in 1892, half a century since any work was done on the genus, described *A. mollis*, based on the *A. Eupatoria*, var. *mollis* of Torrey and Gray. Bicknell, in 1896, raised Muhlenberg's *A. Eupatoria*, var. *hirsuta* to specific rank, giving at the same time a description of this and a new species, *A. Brittoniana*. He was apparently unaware that Wallroth had already described the former species as *A. gryp-osepala*, and that the latter was described by Michaux in 1803 as *A. striata*. Kearney, in 1897, described a variety, *A. mollis*, var. *Bicknellii*, which afterwards was found to be the same as *A. mollis*, described by Wallroth in 1842 as *A. pubescens*.

Prior to 1893, when Britton's 'Manual' began to influence the names in this genus, but three specific names were in use for species of *Agrimonia* in the eastern states, *A. Eupatoria*, *A. parviflora*, and *A. striata*, the latter not being mentioned in any manual or flora of recent date, and the name applied also to both *A. rostellata* and *A. pubescens*.

Muhlenberg, in his 'Catalogue,' recognized and indicated several species and varieties in this genus, but these were not accepted until after 1891, and his names are *nomina nuda*. Torrey and Gray, in 1840, described several species, among which was *A. Eupatoria*, var. *mollis*, afterwards raised to specific rank by Britton in 1892. Wallroth's monograph of this genus, in 1842, was not recognized by any of

the manuals or floras until 1891, when Britton in his 'Manual' accepted some of the species.

Wood, in the last edition of his 'Botanist and Florist,' in 1876, gives only *A. Eupatoria* and *A. parviflora*, while Tracy, in his 'Flora of Missouri,' in 1885, catalogues the same species, the latter correct, the former including *A. pubescens* and *A. rostellata*.

Gray, in the sixth edition of his 'Manual,' in 1890, gives but two species, *A. Eupatoria* and *A. parviflora*, the latter correct, the former including all the other species. Eggert, in his catalogue,¹ gives these same two species, *A. parviflora* being correct, but *A. Eupatoria* is applied to *A. rostellata*. Chapman, in his 'Flora,'² describes *A. Eupatoria*, *A. Eupatoria*, var. *mollis*, and *A. parviflora*, the last two correct, the other being *A. gryposepala*.

Having thus reviewed the history of the species found, or likely to be found, I now present for the Missouri species the following key:

1. Fruiting hypanthium with several series of bristles, the lower reflexed; racemes and leaves beneath with loose spreading hairs.....1. *Agrimonia gryposepala*
1. Fruiting hypanthium with 2-4 series of bristles, the latter erect, ascending, or merely spreading; racemes and leaves beneath closely or softly pubescent, or glabrous.
 2. Racemes and leaves glabrous or nearly so, glandular-granuliferous; root tuberous-thickened.....2. *Agrimonia rostellata*
 2. Racemes and lower surface of the leaves decidedly hairy.
 3. Roots not tuberous; leaflets not conspicuously glandular-granuliferous beneath.6. *Agrimonia parviflora*
 3. Roots tuberous-thickened; leaflets not glandular-granuliferous or only slightly so, velvety-pubescent beneath.
 4. Fruiting hypanthium campanulate or turbinate, longer than broad; rim of fruit not conspicuous; leaflets of the lower leaves 7-13; long hairs of the stem erect or ascending5. *Agrimonia pubescens*
 4. Fruiting hypanthium broadly obconic, nearly as broad as long or broader, shorter than the sepals, with a prominent rim; lower leaves with 3-5, rarely 7, leaflets; long hairs of the stem divaricate.

¹Catalogue of the phaenogamus and vascular cryptogamous plants in the vicinity of St. Louis, Mo. 1891.

²Flora southern United States. 1897.

5. Leaves usually crowded on the lower part of the stem; leaflets 3 or 5, with the lower pair much reduced, rounded at the apex; fruiting hypanthium as broad as long
3. *Agrimonia microcarpa*
5. Leaves scattered on the stem; leaflets 5-7, acute at the apex; fruiting hypanthium as broad as long, or usually broader
4. *Agrimonia platycarpa*

1. *Agrimonia gryposepala* Wallr. Beitr. Bot. 1¹:49. 1842.
Agrimonia Eupatoria Pursh, Fl. Am. Sept. 1:335. 1816,
 not L. 1753.

Agrimonia Eupatoria Gray, Manual, ed. 6, 161. 1890, not
 ed. 2. 1753.

Agrimonia Eupatoria Chapman, Fl. Southern U. S. 133.
 1897, not L. 1753.

Agrimonia Eupatoria, var. *hirsuta* Muhl. Cat. 47 (hyponym). 1813; Barton, Fl. Phila. Prodr. 53. 1815.

Agrimonia hirsuta (Muhl.) Bickn. Bull. Torr. Bot. Club 23:509. 1896, not *Agrimonia hirsuta* Boug. 1842.

The only specimens seen are the following:

Ethel, *Bush* 7842, Sept. 23, 1915, good complete plants.

2. *Agrimonia rostellata* Wallr. Beitr. Bot. 1¹:42. 1842.

Agrimonia Eupatoria Gray, Manual, ed. 6, 161. 1890, not
 L. 1753.

Agrimonia Eupatoria, var. *glabra* Muhl. Cat. 47 (hyponym). 1813.

Agrimonia Eupatoria, var. *parviflora* Hook. Fl. Bor. Am. 1:197. 1840.

Agrimonia parviflora Seringe, in DC. Prodr. 2:588. 1825,
 not *Agrimonia parviflora* Soland. in Ait. Hort. Kew. 2:130.
 1789.

Agrimonia americana Lucae, in Wallr. Beitr. Bot. 1¹:43, as
 synonym. 1842.

Agrimonia striata Bickn. Bull. Torr. Bot. Club 23:512.
 1896, not *Agrimonia striata* Michx. 1803.

The following specimens have been examined:

Williamsville, Wayne Co., *Trelease* 149, Sept. 9, 1897, a
 small, weak, poor specimen, but undoubtedly this species, in
 flower and young fruit, Herb. No. 52,255; Swan, Taney Co.,

Bush 560, Sept. 24, 1899, a small, weak plant in young flower, Herb. No. 52,256; Monteer, Shannon Co., *Bush 746*, Aug. 22, 1901, a complete specimen in flower and fruit, Herb. No. 52,257; East Bertig, Dunklin Co., *Trelease*, Oct. 28, 1897, a small, weak plant with fruit all fallen off, Herb. No. 52,254; Meramec Highlands, St. Louis Co., *A. G. Johnson*, July 29, 1905, the upper part of a robust plant in flower and young fruit, Herb. No. 52,252; Spring River, Jasper Co., *Trelease 982*, Sept. 18, 1898, a fine, complete plant with nearly all the fruit fallen off, Herb. No. 52,253; Thornton, Clay Co., *Mackenzie 642*, Oct. 18, 1901, a complete plant with all the fruit fallen off, Herb. No. 52,258; Campbell, Dunklin Co., *Bush 110*, Aug. 16, 1895, a small, weak plant not yet in flower, Herb. No. 52,259; Dodson, Jackson Co., *Bush 107*, Aug. 26, 1895, a complete plant in full-grown fruit, Herb. No. 52,260; Flat River, St. Francois Co., *Trelease*, Oct. 13, 1897, a poor, weak plant with the fruit all fallen off, Herb. No. 52,261; Webb City, Jasper Co., *Bush 6026*, July 23, 1910, a good, complete specimen in flower and young fruit, Herb. No. 52,262; Fern Glen, St. Louis Co., *A. G. Johnson*, July 14, 1906, the upper part of a plant not yet in flower, with narrower leaves than usual, but evidently belonging to this species, Herb. No. 52,263; Meramec Highlands, St. Louis Co., *Eggert*, July 10, 1897, a fine, large plant scarcely yet in flower, Herb. No. 52,264; Monteer, Shannon Co., *Bush 4896*, Oct. 10, 1907, a poorly pressed, large plant in fine fruit, Herb. No. 52,265; Sulphur Springs, Jefferson Co., *Trelease*, Oct. 23, 1899, the plant marked A, the fruit all fallen off, Herb. No. 52,266; Winona Lodge, James River, Greene Co., *Trelease*, July 22, 1897, a fine, full plant just coming into flower, Herb. No. 52,267; Jefferson City, Cole Co., *Dr. O. Krause*, June, 1866, a fairly complete plant just coming into flower, labeled *A. parviflora*, Herb. No. 52,268; Williamsville, Wayne Co., *Trelease*, Sept. 9, 1897, a large, complete plant with some fruit still on the branches, Herb. No. 52,269; Allenton, St. Louis Co., *Letterman*, July 10, 1888, a fine complete plant in flower and fruit, labeled *A.*

striata, Herb. No. 52,270; Swope Park, Jackson Co., *MacKenzie*, July 4, 1896, the plant marked B, a fine complete plant just coming into flower, Herb. No. 52,292; Pilot Knob, Iron Co., *Glatfelter*, Aug. 20, 1895, the plant marked A, a small plant with all the fruit fallen off, labeled *A. microcarpa*, Herb. No. 52,292.

3. *Agrimonia microcarpa* Wallr. Beitr. Bot. 1¹:39. 1842.
Agrimonia pumila Muhl. Cat. 47 (hyponym). 1813; Bicknell, Bull. Torr. Bot. Club 23:514. 1896.

Only the following have been examined:

Terre Bleue Creek, St. Francois Co., *Trelease*, Aug. 29, 1898, a small plant, 3 dm. tall, with five or six leaves near the base, in young fruit and flower, Herb. No. 52,271.

4. *Agrimonia platycarpa* Wallr. Beitr. Bot. 1¹:38. 1842.
Agrimonia Eupatoria Gray, Manual, eds. 1-6, in part, and of many other American authors, not L. 1753.

The following specimens have been examined:

Dodson, Jackson Co., *Bush 851*, Sept. 2, 1900, a very good, whole plant in ripe fruit, Herb. No. 52,273; Atchison Co., *Bush*, Aug. 23, 1893, a complete specimen in full fruit, which I refer to this species, Herb. No. 52,319; Cliff Cave, St. Louis Co., *J. B. S. Norton*, Aug. 26, 1899, a very poor specimen with no fruit, but which may well belong to this species, Herb. No. 52,394; Courtney, Jackson Co., *Bush 253*, Aug. 21, 1896, a complete specimen in good fruit, which appears to belong to this species, Herb. No. 52,320; Springfield, Greene Co., *Dewart 115*, July 31, 1882, one small and one tall, slender plant in poor condition, the plant marked B apparently belonging to this species, labeled *A. Eupatoria*, Herb. No. 52,316; Hannibal, Marion Co., *Davis 6210*, Aug. 24, 1915, a full, complete plant in fruit; Swope Park, Jackson Co., *Bush*, Oct. 14, 1915, full, complete plants in fine fruit.

5. *Agrimonia pubescens* Wallr. Beitr. Bot. 1¹:45. 1842.
Agrimonia Eupatoria, var. *mollis* Torr. & Gray, Fl. N. Am. 1:431. 1840.

Agrimonia Eupatoria Gray, Manual, eds. 1-6, in part, and of many other American authors, not L. 1753.

Agrimonia parviflora Kinn, in Wallr. Beitr. Bot. 1¹:45, as synonym. 1842, not *A. parviflora* Soland. 1789.

Agrimonia mollis (T. & G.) Britton, Bull. Torr. Bot. Club 19:221. 1892.

The following specimens were examined:

Seligman, Barry Co., *Dewart*, Aug. 21, 1892, a complete plant in flower and fruit, with no specific name, Herb. No. 52,272; Washington Co., *Wislizenus 107*, July 23, 1885, several pieces apparently all belonging to one plant, labeled *A. Eupatoria*, Herb. No. 52,291; Jefferson Barracks, St. Louis Co., *Norton*, Nov. 17, 1900, a very poor specimen without leaves or fruit, but evidently this species, Herb. No. 52,290; Roaring River, Barry Co., *Trelease 983*, Sept. 7, 1898, a tall plant cut into two pieces, with the fruit all fallen off, Herb. No. 52,296; Flat River, St. Francois Co., *Trelease*, Oct. 13, 1897, two plants, one very poor, the other with ripe fruit, Herb. No. 52,297; St. Louis, St. Louis Co., *Engelmann*, Aug., 1842, labeled *A. striata*, Herb. No. 52,298; Seligman, Barry Co., *Dewart*, Aug. 21, 1892, a tall plant in fruit, not named, Herb. No. 52,299; Chain of Rocks, St. Louis Co., *Craig*, Oct. 4, 1908, a poorly pressed, tall plant with nearly all the fruit fallen off, Herb. No. 52,300; Webb City, Jasper Co., *Bush 6038*, July 23, 1910, a fine, large, complete plant just coming into flower, Herb. No. 52,301; Monteer, Shannon Co., *Bush 6136*, Aug. 8, 1910, a tall, fine plant just coming into flower, Herb. No. 52,302; Monteer, Shannon Co., *Bush 6135*, Aug. 8, 1910, a slender, complete plant in flower and young fruit, Herb. No. 52,303; St. Louis, St. Louis Co., *Glatfelter*, 1889, the top of a tall, robust plant just coming into flower, labeled *A. Eupatoria*, Herb. No. 52,304; west of St. Louis, St. Louis Co., *Hitchcock*, July 26, 1890, a tall, robust plant with all of the fruit fallen off, not named, Herb. No. 52,305; Cass Co., *Broadhead*, Aug. 11, 1884, two very poor specimens of tops of plants, without flowers or fruit, but evidently this species, Herb. No. 52,306;

Newton Co., *Bush*, July 15, 1893, a small plant in fruit, labeled *A. Eupatoria*, Herb. No. 52,307; Greene Co., *Blankinship*, Aug. 13, 1889, a slender plant broken in two pieces, in mature fruit, labeled *A. microcarpa* by me, Herb. No. 52,308; Creve Coeur Lake, St. Louis Co., *Norton*, Sept. 17, 1898, a poor specimen as to leaves, but with good fruit, Herb. No. 52,309; Kansas City, Jackson Co., *Bush 1747*, July 29, 1902, a full, complete specimen in flower and fruit, Herb. No. 52,310; Webb City, Jasper Co., *Palmer 306*, Aug. 30, 1902, a specimen in poor condition, with fruit all fallen off, Herb. No. 52,311; Independence, Jackson Co., *Bush 272*, Sept. 12, 1895, a poor specimen as to leaves, but with good fruit, Herb. No. 52,312; Monteer, Shannon Co., *Bush 745*, Aug. 22, 1901, a fine, large plant in good fruit, Herb. No. 52,313; Swan, Taney Co., *Bush 721*, Oct. 1, 1899, a poor plant as to leaves, but with fine large fruit, Herb. No. 52,314; North Kansas City, Clay Co., *Mackenzie*, Sept. 12, 1897, a large, fine specimen in fine fruit, Herb. No. 52,315; Springfield, Greene Co., *Dewart 115*, July 31, 1892, the plant marked A apparently belonging to this species, Herb. No. 52,316; Bismarck, St. Francois Co., *Bush 37*, Sept. 12, 1893, the top of a fine plant in fine fruit, Herb. No. 52,317; McDonald Co., *Bush*, Sept. 1, 1893, the top of a tall plant in good condition, but just coming into flower, Herb. No. 53,318; Sulphur Springs, Jefferson Co., *Trelease*, an upper and lower part of a poor plant without fruit, Herb. No. 52,266.

6. *Agrimonia parviflora* Soland. in Ait. Hort. Kew. **2:130.** 1789.

Agrimonia Eupatoria Michx. Fl. Bor. Am. **1:287.** 1803, not *A. Eupatoria* L. 1753.

Agrimonia suaveolens Pursh. Fl. Am. Sept. **1:336.** 1816.

Agrimonia serrifolia Wallr. Beitr. Bot. **1¹:40.** 1842.

Agrimonia Eupatoria, var. *americana* Kinn, in Wallr. Beitr. Bot. **1¹:40.** 1842, as synonym.

Agrimonia polyphylla Urban, Symb. Ant. **7:227.** 1912.

Specimens examined:

Marble Cave, Stone Co., *Trelease*, Sept. 11, 1898, a large, fine plant in fine fruit, Herb. No. 52,274; Little Blue, Jackson Co., *Bush 258*, Aug. 9, 1896, a good specimen just coming into flower, Herb. No. 52,275; Texas Co., *Blankinship*, Aug. 6, 1888, a good specimen just in young fruit, Herb. No. 52,276; St. Louis Co., *Eggert*, July 27, 1878, a good, full specimen scarcely in flower, Herb. No. 52,277; Pilot Knob, Iron Co., *Russell*, Sept., 1897, a good middle portion of a plant without flowers or fruit, Herb. No. 52,278; McDonald Co., *Bush*, Sept. 1, 1893, a good, full specimen in flower and fruit, Herb. No. 52,279; Jasper Co., *Bush*, Aug. 16, 1893, a good terminal portion of a large plant in flower and young fruit, Herb. No. 52,280; Purcell, Jasper Co., *Palmer 609*, Sept. 25, 1904, a weak, undeveloped plant in flower and fruit, Herb. No. 52,281; Monteer, Shannon Co., *Bush 6134*, Aug. 8, 1910, a good, complete specimen just coming into flower, Herb. No. 52,282; Smithfield, Jasper Co., *Palmer*, Oct. 11, 1908, a good, full specimen with nearly all the fruit fallen off, Herb. No. 52,285; Kimmswick, Jefferson Co., *Wislizenus 108*, Aug. 23, 1885, a good middle portion of a plant without flowers or fruit, Herb. No. 52,287; Monteer, Shannon Co., *Bush 4897*, Oct. 10, 1907, a good, complete plant with nearly all the fruit fallen off, Herb. No. 52,283; St. Louis, St. Louis Co., *Glatfelter*, 1892, a good, complete plant just coming into flower, Herb. No. 52,284; Lake City, Jackson Co., *Mackenzie*, Aug. 9, 1896, a good, complete plant in flower and young fruit, Herb. No. 52,287; Kimmswick, Jefferson Co., *Wislizenus 108*, Aug. 23, 1885, evidently the upper part of sheet No. 52,289, in good flower and fruit, Herb. No. 52,288.